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4.7 AIR QUALITY

INTRODUCTION

The San Joaquin County Council of Governments (SJCOG), in cooperation with Caltrans, proposes the construction and operation of the Lodi ProStyle Sports Complex. The purpose of the project is to provide the City of Lodi and the region with a world class athletic training and sports event center with visitor accommodations and retail commercial and support services.

The purpose of this report is to ensure that sufficient consideration has been given to the preservation of air quality in the vicinity of the proposed project during construction and operation in accordance with federal, State, and local requirements. The project will potentially impact local air quality during construction and during operation. The major emission sources from construction activities include construction equipment exhaust emissions, dust generated by mechanical disturbances, and wind blown dust from exposed surfaces. Criteria air pollutants emitted include particulate matter with an aerodynamic diameter less than ten micrometers (PM_{10}), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and sulfur oxides (SO_x). PM_{10} is the primary air pollutant of concern during construction, while NO_x is the primary pollutant of concern during operation.

IMPACTS EVALUATED IN OTHER SECTIONS

The following items are related to Air Quality but are evaluated in other sections of this document.

Transportation. Increases in traffic and circulation can lead to increased air quality problems. The volume of additional traffic is discussed in Section 4.6, Transportation.

AFFECTED ENVIRONMENT (SETTING)

Meteorology and Topography

The primary factors affecting local air quality are the locations of air pollutant sources and the amounts of pollutants emitted, but meteorological and topographical conditions also are important. Atmospheric conditions such as wind speed, wind direction and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

The project area is located in the western portion of the San Joaquin Valley. The project area is bordered on the west side by the Altamont Hills. The Altamont Pass provides the major air flow passage from the Livermore Valley to the San Joaquin Valley. The rest of the surrounding area is relatively flat. The project area has a lower potential for pollutant

accumulation than locations like Stockton (that are located closer to the center of the valley) because of the air movement through the Altamont Pass from the Pacific Ocean and the San Francisco Bay. There is, however, the potential for pollutants to be transported from Livermore Valley through the Altamont Pass to the San Joaquin Valley.

Temperature

Vertical temperature gradients influence the vertical stability of the atmosphere and vertical mixing of air pollutants. Unstable atmospheres have more vertical mixing than stable atmospheres. Typically, air temperatures decrease with altitude and facilitate mixing. However, a temperature inversion, which is a layer of warm air above a cooler layer of air, acts as a nearly impenetrable lid. Inversions severely limit vertical mixing of the atmosphere and thus decrease the vertical dilution of near-surface air pollutant emissions. Inversions occur frequently in the project area, typically at heights between ground level and about 150 meters above ground level. Summer inversions usually are caused by the compressional warming of air as it sinks toward the earth's surface under the influence of a semi-permanent high pressure zone known as the "Pacific High". When local or seasonal cooling of the earth's surface occurs, as it does most frequently during the fall and winter, ground-based inversions form. Both types of inversions can occur during the fall, contributing to high ozone and other air pollutant concentration levels.

Horizontal temperature gradients create wind flows that disperse air pollutants. Horizontal temperature gradients are greater near the coast due to differential heating between land and water surfaces. This effect is diminished inland in proportion to the distance from the ocean. The project area is fairly sheltered from the effects of water bodies; thus, it experiences smaller temperature gradients and less efficient pollutant dispersion than coastal areas. There are occasions when the Pacific High is especially strong and the project area experiences some of the effects of the Pacific Ocean. The project area, however, does have larger horizontal temperature gradients (and thus more mixing) than farther inland locations in the San Joaquin Valley Air Basin because of the Altamont Pass.

Temperature can also play an important role in the production of pollutants. In the winter, the potential for high CO levels is related to minimum temperatures. Motor vehicles, the primary source of CO, run less efficiently and produce more CO when temperatures are lower. The lowest winter temperatures are usually found in the inland sheltered valleys because these areas are protected from the moderating influences of the ocean and bays.

The lack of ocean influence in inland areas also leads to warmer temperatures inland during the summer months. Ozone is produced when hydrocarbons and nitrogen oxides react in the presence of sunlight and warm temperatures. Thus, the inland areas are more prone to ozone formation. The project area experiences the warmer summer and colder winter temperatures typical of inland areas.

Temperatures in the area range from highs of about 34^{o} C in the summer to lows of 2^{o} C in the winter (NOAA 1982). Consequently, the project area has a relatively high potential for accumulation of air pollutants based on temperature extremes.

Precipitation

When precipitation occurs, air pollutants can be "washed out" of the atmosphere and/or prevented from entering the atmosphere. The summer climate of California is dominated by the Pacific High, located over the eastern Pacific Ocean. The Pacific High generally remains fixed offshore from May through September. Because of this persistent high-pressure cell, storms rarely affect California during summer, and precipitation is negligible. The long period of dry weather aggravates the problem of wind blown dust, resulting in generation of PM_{10}.

In winter, the Pacific High weakens and shifts southward and storms become more frequent. During the rainy weather periods, air pollution potential is very low. When clear conditions dominate during winter, however, surface-based radiative inversions often occur. Under these conditions, winds are light and the potential for accumulation/concentration of air pollutants is high.

Precipitation data show that the rainy season occurs primarily between November and April. Very little rainfall is observed during the rest of the year. The annual average precipitation for the area is approximately 250 millimeters (NOAA 1982).

Wind

Light winds or calms limit the dilution of air pollutants as they disperse downwind from their source. Air pollutants can accumulate, especially in sheltered valleys, when light winds combine with reversals of wind direction between daytime and nighttime air flows, or when calms persist for extended periods.

In the project area, the predominant wind direction is from the southwest. During the winter months, the southerly migration of the Pacific High causes the predominant wind direction to be from the northeast. The annual average wind speed is 2.0 meters per second. During the spring and summer months, the daytime wind speed increases slightly to approximately 2.7 meters per second (ARB 1984). The best pollutant dispersion occurs in the summer with the higher velocity winds. The calmest winds, which lead to pollutant stagnation, occur during the fall months.

Current Air Quality

ARB maintains three air quality monitoring sites in Stockton. The data from Stockton are monitoring sites are representative of the site with the exception of the carbon

monoxide data. A summary of air quality data from these monitoring sites is presented in Table 4.7-1 for the years 1997-1999. Table 4.7-1 shows that the standards for ozone, carbon monoxide and PM_{10} are exceeded in the Stockton area. Levels of sulfur dioxide and nitrogen dioxide do not exceed either the State or federal standards.

Table 4.7-1

Air Quality Data for Stockton Monitoring Site 1997-1999

Pollutant	Standard	Site	Days Above Standard In:		
			1997	1998	1999
Carbon Monoxide	State / Federal 1-Hour	Hazelton	0	0	0
		Claremont	0	0	0
		Mariposa	-	-	-
Ozone	State 1-Hour	Hazelton	1	10	6
		Claremont	-	-	-
		Mariposa	3	9	4
Ozone	Federal 1-Hour	Hazelton	0	1	2
		Claremont	-	-	-
		Mariposa	0	0	1
Ozone	Federal 8-Hour	Hazelton	0	4	4
		Claremont	-	-	-
		Mariposa	0	2	4
PM_{10}	State 24-Hour	Hazelton	5	8	10
		Claremont	-	-	-
		Mariposa	-	-	-
PM_{10}	Federal 24-Hour	Hazelton	0	0	0
		Claremont	-	-	-
		Mariposa	-	-	-

Source: California Air Resources Board, Summary of Air Quality Data, 1997, 1998, 1999

Regional Air Quality Planning

The U.S. Clean Air Act Amendments of 1977 require that each state identify areas within its borders that do not meet federal primary standards (i.e., nonattainment areas). The federal Clean Air Act required the preparation of a nonattainment plan showing how the federal standards were to be met by 1987. San Joaquin County was one of many nonattainment areas in California that failed to meet the federal ambient air quality standards by 1987.

Prior to 1988, there was no timetable for attainment of the State air quality standards. The California Clean Air Act, enacted in 1988, requires local air pollution control districts to prepare air quality attainment plans for ozone and carbon monoxide. Generally, these plans must provide for district-wide emission reductions of five percent per year averaged over consecutive three-year periods. The Act also grants air districts explicit statutory authority to adopt indirect source regulations and transportation control measures, including measures to encourage or require the use of ridesharing, flexible work hours, or other measure which reduce the number or length of vehicle trips.

Under the California Clean Air Act, San Joaquin County is considered nonattainment for ozone and suspended particulates (PM_{10}). The County is either attainment or unclassified for other pollutants.

REGULATORY FRAMEWORK

Pursuant to the federal Clean Air Act (CAA) of 1970, and its subsequent amendments, the U.S. Environmental Protection Agency (EPA) established ambient air pollutant concentration standards and maximum allowable emission rates for individual sources of air pollutants. Air quality is controlled through the attainment and maintenance of ambient standards and enforcement of emission limits. A system (i.e., the State Implementation Plan or SIP) also was set up in which EPA made each state responsible for attaining ambient air quality standards within its borders.

National Ambient Air Quality Standards (NAAQS) have been established for six criteria air pollutants: ozone (O_3), CO, PM_{10}, NO_2, lead (Pb), and SO_2. Annual average standards are never to be exceeded. Short-term standards (e.g., 1-hour, 8-hour, and 24-hour averages) are not to be exceeded more than once a year. Primary standards for air pollutants were established to protect public health, while secondary standards were established to protect the public welfare by preventing impairment of visibility and damage to vegetation and property. These six air pollutants are termed “criteria” pollutants because the standards established for them were based upon documented human health criteria. Table 4.7-2 summarizes the characteristics, health effects, and major sources of these pollutants. Table 4.7-3 lists the federal and state ambient air quality standards.

The 1977 Amendments to the CAA required that each State identify areas within its boundaries that did not meet the NAAQS and develop and obtain EPA approval of a State Implementation Plan (SIP) that demonstrates how the State will attain NAAQS.

Major amendments to the CAA were signed into law on November 15, 1990. These amendments prescribe new planning requirements and attainment deadlines for areas that do not attain NAAQS. Procedures and guidelines for conforming with the 1990 CAA amendments (1990 CAAA) have been prepared and continue to be updated by the EPA. The 1990 amendments also directed the EPA to set control standards for hazardous air pollutants (HAPs) and require certain industries to significantly reduce emissions of HAPs.

Table 4.7-2

Major Criteria Pollutants

Pollutant	Characteristics	Health Effects	Major Sources
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen.) Often called photochemical smog	Eye irritation Respiratory function impairment	The major sources of ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	Impairment of oxygen transport in the bloodstream. Aggravation of cardiovascular disease. Fatigue, headache, confusion, dizziness. Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in wood stoves and fireplaces.
Nitrogen Dioxide	Nitrogen dioxide is a reddish-brown gas that discolors the air, formed during combustion.	Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a color gas with a pungent, irritating odor.	Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
PM_{10}	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Source: Donald Ballanti, Certified Consulting Meteorologist, 1995

Table 4.7-3

Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standard	State Standard
Ozone	1-Hour	0.12 PPM	0.09 PPM
	8-Hour	0.08 PPM	--
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual	0.05 PPM	--
	1-Hour	--	0.25 PPM
Sulfur Dioxide	Annual	0.03 PPM	--
	24-Hour	0.14 PPM	0.05 PPM
	1-Hour	--	0.25 PPM
PM_{10}	Annual	50 $\mu g/m^3$	30 $\mu g/m^3$
	24-Hour	150 $\mu g/m^3$	50 $\mu g/m^3$
Lead	30-Day Avg.	--	1.5 $\mu g/m^3$
	Month Avg.	1.5 $\mu g/m^3$	--

Source: California Air Resources Board, 2000.

PPM = Parts per Million
$\mu g/m^3$ = Micrograms per Cubic Meter

The project is located in San Joaquin County, which lies in the San Joaquin Air Basin. This basin encompasses the Counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Kings, Tulare, and Kern. The San Joaquin Valley Air Basin has been designated by the EPA as a nonattainment area for O_3 and PM_{10} federal standards. The San Joaquin County area which includes the Sports Arena Area is considered by the EPA as attainment/unclassified for CO. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) is responsible for air pollution control within the San Joaquin Valley Air Basin. Their latest SIP update was submitted in 1993.

The California Air Resources Board (ARB) coordinates and oversees the activities of California's many single-county Air Pollution Control Districts (APCDs) and multi-county Unified APCDs (UAPCDs) and Air Quality Management Districts (AQMDs). ARB and the APCDs/UAPCDs/AQMDs operate numerous air quality monitoring stations throughout the State. Data collected at those stations are used to classify areas and air basins as attainment or nonattainment for each criteria air pollutant based on whether ambient air quality standards have been achieved. ARB also is responsible for incorporating local nonattainment plans into the SIP.

ARB has established State ambient air quality standards, many of which are more stringent than the corresponding NAAQS. In addition to the six criteria pollutants

regulated by the CAA, ARB has also established standards for hydrogen sulfide, sulfates, and vinyl chloride. State standards for SO_2 and Pb are not to be equaled or exceeded. Other State ambient air quality standards are never to be exceeded.

An area is considered to be nonattainment for a certain pollutant if violations of the applicable standard have occurred in each of the last three years. One violation per year contributes toward State designation as nonattainment; federal designation occurs with two or more violations per year. For the purposes of considering an air basin as attainment with respect to a standard, ARB and EPA both consider multiple violations of short-term standards on the same day as one violation.

The California Clean Air Act (CCAA), which became effective on January 1, 1989, provides a planning framework for attainment of State ambient air quality standards. Local APCDs and AQMDs with areas in violation of State ambient air quality standards are required to prepare plans for attaining the State standards. The CCAA provides for the classification of nonattainment air basins into three classes: moderate, serious, and severe. For each class, the CCAA specifies attainment guidelines that must be followed. For all classes, attainment plans are required to demonstrate a five percent per year reduction in the emissions of nonattainment pollutants or their precursors, unless ARB determines that all feasible measures are being employed to reduce emissions.

The 1991 Air Quality Attainment Plan for the San Joaquin Valley was prepared by the SJVUAPCD. The Plan responds to the requirements of the CCAA and was approved by ARB in January 1992. The Plan covers both O_3 and CO attainment issues. The San Joaquin Valley Air Basin was reclassified by ARB as a State attainment area for CO in November 1994.

The San Joaquin Valley Air Basin does not attain PM_{10} ambient air quality standards, but the CCAA does not yet require attainment programs for PM_{10}. The California legislature, when it passed the CCAA in 1988, recognized that PM_{10} attainment was not easily obtained and excluded it from the requirements of the CCAA. The CCAA did require ARB to produce a report regarding the prospect of achieving the State ambient air quality standard for PM_{10}. ARB recommended that certain actions be taken, but did not impose a planning process to require attainment within a specified time frame.

EVALUATION CRITERIA WITH POINTS OF SIGNIFICANCE

According to Appendix G of the CEQA Guidelines, a project will normally have a significant adverse impact on air quality if it will violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The project's potential for violating the ambient air quality standards for local pollutants or causing nuisance to neighboring properties is used to determine the significance of localized air quality impacts.

For regional pollutants, violation of air quality standards cannot be used as a "threshold of significance," since the standards are exceeded in San Joaquin County. The San

Joaquin Valley Unified Air Pollution Control District has established interim "thresholds of significance" for ozone precursors of 10 tons/year (roughly 55 pound per day) for Reactive Organic Gases (ROG) and Nitrogen Oxides (NO_x) (Guide for Assessing and Mitigating Air Quality Impacts, Technical Document, prepared by San Joaquin Valley Unified Air Pollution Control District August 20, 1998). These thresholds have been used in this report to determine significance of regional emission increases.

The San Joaquin Valley Unified Air Pollution Control District has adopted "Regulation VIII" which requires stabilization of storage piles, the use of water for chemical dust suppressants for unpaved construction or access roads, and removal of accumulated mud or dirt from public paved roads. If a project complies with this regulation and additional construction mitigation measures when needed, the project is considered to have a less than sufficient on air quality during the construction phase of the project.

Table 4.7-4

Evaluation Criteria and Points of Significance - Air Quality

Evaluation Criteria	As Measured By	Point of Significance	Justification
1. Will project construction activities, such as grading, leveling and earth moving activities on newly disturbed ground surfaces result in increased air pollutants?	Pollutant levels	Any failure to include required mitigation measures including Regulation VIII requirements.	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board
2. Will project construction equipment generate PM_{10} emissions?	PM_{10} emissions levels	Greater than: Annually: 30 $\mu g/m^3$ 24-hr: 50 $\mu g/m^3$	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board
3. Will project emit organic gases?	Organic gas levels	10 tons/yr VOC	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board
4. Will traffic generated by the proposed project increase carbon monoxide levels along local roadways?	Carbon monoxide levels	CO concentrations exceeding 20 ppm 1-hour and 9.0 ppm 8-hour state standards.	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board

Table 4.7-4

Evaluation Criteria and Points of Significance - Air Quality

Evaluation Criteria	As Measured By	Point of Significance	Justification
5. Will people be exposed to odors from the White Slough WPCF and disposal of effluent and biosolids on adjacent parcels?	Odor complaints	Complex has record of 10 verified odor complaints in a one-year period.	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board
6. Will trips generated by the proposed project result in a cumulative increase in emissions of pollutants?	Air pollutant emissions levels	Any failure to include required mitigation measures including Regulation VIII requirements.	CEQA, San Joaquin Valley Unified Air Pollution Control District, and California Air Resources Board

Source: Parsons, 2001

ENVIRONMENTAL CONSEQUENCES (IMPACTS) AND RECOMMENDED MITIGATION

Table 4.7-5

Air Quality

Evaluation Criteria	As Measured by	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
1. Will project construction activities, such as grading, leveling and earth moving activities on newly disturbed ground surfaces result in increased air pollutants?	Pollutant levels	Any failure to include required mitigation measures including Regulation VIII requirements.	Medium	C	⊙
2. Will project construction equipment generate PM_{10} emissions?	PM_{10} emissions levels	Greater than: Annually: 30 $\mu g/m^3$ 24-hr: 50 $\mu g/m^3$	Medium	C	⊙
3. Will project construction solvents and related materials emit organic gases?	Organic gas levels	10 tons/yr VOC	Medium	C	⊙

Table 4.7-5

Air Quality

Evaluation Criteria	As Measured by	Point of Significance	Impact	Type of Impact[1]	Level of Significance[2]
4. Will traffic generated by the proposed project increase carbon monoxide levels along local roadways?	Carbon monoxide levels	CO concentrations exceeding 20 ppm 1-hour and 9.0 ppm 8-hour state standards.	Low	P	❍
5. Will people be exposed to odors from the White Slough WPCF and disposal of effluent and biosolids on adjacent parcels?	Odor levels	Complex has record of 10 verified odor complaints in a one-year period.	Medium	P	⊙
6. Will trips generated by the proposed project result in a cumulative increase in emissions of pollutants?	Air pollutant emissions levels	Any failure to include required mitigation measures including Regulation VIII requirements.	High	P	●

Source: Parsons 2001

1. C: Construction P: Permanent
2. Level of Significance Codes
   - -- Not applicable
   - == No impact
   - ● Significant impact before and after mitigation
   - ⊙ Significant impact; less than significant after mitigation
   - ❍ Less than significant impact; no mitigation proposed

Impact: 4.7-1 Will project construction activities, such as grading, leveling and earth moving activities on newly disturbed ground surfaces result in increased air pollutants?

Analysis: *Less than Significant; No Project*

The No Project alternative would not result in construction emissions, and would not impact air quality.

Analysis: *Significant; Project, Sports Use Only, and Alternate Site*

The major impact related to construction activity is dust generated by equipment and vehicles. The effects of construction activities will be increased dustfall and locally elevated levels of PM_{10} downwind of the project site. Fugitive dust is emitted both during construction activity and

as a result of wind erosion over exposed earth surfaces. Clearing and grading activities comprise the major sources of construction dust emissions, but traffic and general disturbance of the soil also generate significant dust emissions.

Construction dust impacts are extremely variable, depending on wind speed, soil type, soil moisture, the type of construction activity and acreage affected by construction activity. The highest potential for construction dust impacts will occur during the dry late spring, summer and early fall months when soils are dry. The potential for dust nuisance is low because of the lack of development in the vicinity. Because San Joaquin County is a nonattainment area for PM_{10}, construction dust is considered a temporary significant impact on regional emissions of PM_{10}. This impact can be mitigated, however, to a level that is less than significant.

Mitigation: **4.7-1 PM_{10} Dust Prevention and Control Plan**

Development and implementation of a PM_{10} dust prevention and control plan in compliance with Regulation VIII that specifies the methods of control that will be utilized, demonstrate the availability of needed equipment and personnel, and identify a responsible individual who can authorize implementation of additional measures, if needed. The plan shall include at a minimum, the following features:

- All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, or vegetative ground cover.
- All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
- All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
- If applicable, with the demolition of buildings up to six stories in height, all exterior surfaces of the building shall be wetted during demolition.
- When materials are transported off-site, all material shall be covered, effectively wetted to limit visible dust emissions, or at least six inches of free board space from the top of the container shall be maintained.
- All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at least once every 24 hours when operations are occurring.

- Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
- The speed of haul trucks shall be limited to 15 miles per hour while on the site.
- If applicable, sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slop greater than one percent.

Several of the above measures are required by the San Joaquin Valley Unified Air Pollution Control District's Regulation VIII. Implementation of these measures is expected to reduce this impact to a level that is less than significant.

After Mitigation: *Less than Significant; All Alternatives*

Impact: 4.7-2 Will project construction equipment generate PM_{10} emissions?

Analysis: *Less than Significant; No Project*

The No Project alternative would not result in construction emissions, and would not impact air quality.

Analysis: *Significant; Project, Sports Use Only, and Alternate Site*

In the absence of complete mitigation, these emissions contribute incrementally to existing significant cumulative air quality effects that have resulted in nonattainment within the air basin for PM_{10}. However, this impact can be mitigated to a level that is less than significant.

Mitigation: See mitigation 4.7-1 above.

After Mitigation: *Less than Significant; All Alternatives*

Impact: **4.7-3 Will project construction solvents and related materials emit organic gases?**

Analysis: *Less than Significant; No Project*

The No Project alternative would not result in construction emissions, and would not impact organic gas levels.

Analysis: *Significant; Project, Sports Use Only, and Alternate Site*

Construction activities are a source of organic gas emissions. Solvents in adhesives, non-waterbased paints, thinners, some insulating materials and caulking materials evaporate into the atmosphere and participate in the photochemical reaction that creates urban ozone. Asphalt used in paving is also a source of organic gases for a short time after its application. The

impacts described are localized, temporary in nature and are associated with all construction projects. Although such impacts are cumulatively significant, they can be mitigated to a level that is less than significant.

Mitigation: **4.7-3 Organic Gas Emissions Prevention Plan**

The project shall comply with all San Joaquin Valley Unified Air Pollution Control District and California Air Resources Board rules and regulations for the use of solvents, paints and similar materials during construction. Compliance with present and future rules and regulations designed to protect air quality will effectively mitigate this minor but cumulative contribution to air basin degradation.

After Mitigation: *Less than Significant; All Alternatives*

Impact: 4.7-4 Will traffic generated by the proposed project increase carbon monoxide levels along local roadways?

Analysis: *Less than Significant; All Alternatives*

The area is currently in attainment of the State and federal CO ambient air quality standards. According to the SJVUAPCD's Guide for Assessing and Mitigating Air Quality Impacts, a project is not expected to create a violation of the CO standard if neither of the following two criteria are exceeded:

1. A traffic study for the project indicates that the Level of Service (LOS) on one of more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F; or
2. A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or intersections in the project vicinity.

Concentrations of carbon monoxide are highest near intersections of major roads. Traffic data show that there will be six intersections that will experience degradations in LOS from level D or above to level E or level F. In addition, five intersections that currently operate at unacceptable levels (E or F) will be worsened by the project. There is a strong potential for significant adverse air quality impacts from increases in ambient concentrations of CO at these intersections. These CO "hotspots" result from increases in the number of slow-moving or idling motor vehicles waiting to clear the intersections. Therefore, mitigation measures should be implemented to mitigate the traffic and resulting air quality impacts. These mitigation measures should include intersection improvements, such as traffic signals, roadway widening, turning restrictions, roadway realignment, and traffic control officers, as stated in mitigation measures 4.6-2 and 4.6 of the Transportation and Circulation section of this EIR. Based on the Transportation and Circulation section of this EIR, the above two criteria will not be exceeded if traffic mitigation measures discussed

in Section 4.6 are applied. Thus, with the traffic mitigation measures, concentrations are expected to remain below State and federal standards. This impact is therefore considered less than significant.

Mitigation No additional mitigation is required.

Impact: **4.7-5 Will people be exposed to odors from the White Slough WPCF and disposal of effluent and biosolids on adjacent parcels?**

Analysis: *Less than Significant; No Project and Alternate Site*

The No Project and Alternate Manteca Site alternatives would not result in the exposure of people to odors from White Slough WPCF and biosolids. This impact is considered less than significant for these alternatives and does not require mitigation.

Analysis: *Potentially Significant; Project and Sports Use Only*

The proposed project would not directly generate or cause odors. The site is located adjacent to and downwind of the WPCF, which will be the source of tertiary treated irrigation water for the soccer fields. The plant produces odors characteristic of a sewage treatment plant. Odors increase on a temporary basis when irrigation with secondary treated effluent and application of biosolids occur on adjacent properties, or due to cannery water. The area around the plant is currently undeveloped, so that odors are not currently a nuisance. The proposed dormitory and hotel are likely to be the most sensitive receptors within the site, since odors are normally much more noticeable at night when stability is high and winds are lightest. The indirect impact of this exposure is the potential for odors complaints, or a reduction in the popularity of the facility. This impact is considered potentially significant, but can be mitigated to a level that is less than significant.

Mitigation: **4.7-5 Odor Control**

The City shall prepare a comprehensive odor control study for the White Slough WPCF (including practices and timing of application of secondary treated effluent, industrial (cannery) waste, and biosolids on adjacent properties, site planning, use of odor masking agents and/or natural masking by landscape vegetation) to identify all odor sources and recommend equipment and/or operational changes and practices to reduce odor exposure. Implementation of recommended improvements and/or practices. Equipment and operational practices are available that can reduce impacts to a level that is less than significant.

After Mitigation: *Less than Significant; All Alternatives*

The project is expected to generate construction and operation emissions that exceed the allowable significance thresholds. However, with the mitigation measures discussed in

this document, the construction phase of the project is anticipated to have a less than significant impact on air quality.

CUMULATIVE IMPACTS

Impact: 4.7-6 Will trips generated by the proposed project result in a cumulative increase in emissions of pollutants?

Analysis: *Less than Significant; No Project*

The No Project alternative would not result in any increases in pollutant emissions.

Analysis: *Significant and Unavoidable; Project, Sports Use Only, and Alternate Site*

The project will attract and generate vehicle trips from throughout Northern and Central California. While these trips may already exist to other sports facilities, the proposed project will increase the amount of travel on roads within the San Joaquin Valley Air Basin. Area source emissions such as equipment utilized for maintenance of the facility, particularly lawn mowing equipment, will also be a source of new emissions.

The number of vehicle trips is based on a transportation study as presented in the Transportation and Circulation section of this report. The estimated emissions associated with vehicle trips attracted to the project are presented in Table 4.7-6. Vehicles attracted to the site will have a higher than average occupancy because soccer is a team sport, families usually participate, and vehicle trips will be from relatively long distances. The provision of a dormitory may also reduce vehicle trips. More details regarding these calculations are presented in Appendix B.

Table 4.7-6

Project Regional Emissions Impacts in Tons/Year

	ROG	NOx	PM_{10}
<u>New Emissions</u>			
Vehicle Emissions	12.6	14.9	4.7
Area Emissions	0.32	0.51	0.1
Total	12.92	15.41	4.7
Significance Criterion	10.0	10.0	na

Source: Parsons, 2001

ROG = Reactive Organic Gases
NO_x = Nitrogen Oxides
PM_{10} = Particulate Matter, 10 microns
na = Not Applicable

Net increases for ROG, NOx, and PM_{10} are predicted to result from development of the proposed project. Based on the recommended "thresholds of significance" of the San Joaquin Valley Unified Air Pollution Control District, project impacts on regional air quality are significant based on total emissions of ROG and NOx, which will exceed the significance threshold.

Mitigation: **4.7-6 Cumulative Air Pollutant Control**

In addition to the mitigation measures for transportation and circulation that will have air quality benefits, including roadway/signal improvements, special traffic control, and Transportation Demand Management measures, implementation of the following mitigation measures to reduce emissions associated with facility maintenance are required:

- Select grass types and landscaping that minimize the need for mowing and trimming.
- Use electric equipment to the greatest extent possible.
- Use electric rather than gasoline-powered carts and vehicles for onsite maintenance and security personnel.

The above measures have the potential to reduce regional ROG and NO_x but not below the San Joaquin Valley Unified Air Pollution Control District's threshold of significance. Therefore, this impact remains significant and unavoidable.

However, this impact can be reduced to a less than significant level if credits are purchased. San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has emission credits available for NOx, PM10 and VOC. The approximate costs are NOx=$15,000/ton, PM10=$15,000/ton and VOC=$8,000/ton. Based on this analysis, only NOx and VOC would need to be offset in the amounts of 5 and 3 tons (one to one offset ratio). Therefore 5 tons of NOx would be $75,000 and 3 tons of VOC would be $24,000 for a total of $89,000. There are also transaction costs of $10,000 to verify offset the validity, work out the off-set levels, etc. The total out of pocket dollars for Lodi ProStyle would be on the order of $100,000.

After Mitigation: *Significant and Unavoidable Unless Off-set credits are purchased, which would result in Less than Significant Impacts; Project, Sports Use Only, and Alternate Site*